

In the Claims

Please cancel claims 1-73.

Please add the following new claims:

74. (New) A copper bond pad for a semiconductor device, said bond pad comprising:

a dielectric layer formed over a substrate of said semiconductor device;

a barrier layer formed over said dielectric layer;

a copper layer formed over said barrier layer, said copper layer having an upper surface implanted with titanium, said copper layer having a thickness of about 500 Angstroms to about 20,000 Angstroms; and

an insulating layer over said copper layer.

75. (New) The copper band pad of Figure 74, wherein said copper layer has a thickness of about 50 Angstroms to about 200 Angstroms.

76. (New) The copper band pad of Figure 74 further comprising a passivation layer formed in contact with said copper layer, wherein said passivation layer is formed of a material selected from the group consisting of silicon oxide, oxynitride, silicon nitride, borophosphosilicate glass and polyimide.

77. (New) The copper band pad of Figure 76 further comprising a via formed in said insulating layer and said passivation layer, said via exposing a portion of said copper layer and defining said bonding pad area.

78. (New) The copper band pad of Figure 74, wherein said dielectric layer is formed of a material selected from the group consisting of phosphosilicate glass, borophosphosilicate glass, silicon oxide, silicon nitride, and silicon oxynitride.

79. (New) An interconnect structure for a semiconductor die, said interconnect structure comprising:

a conductive bond pad containing a copper layer; and

a titanium-aluminum-copper-nitrogen layer formed over at least an upper surface portion of said copper layer.

80. (New) The interconnect structure of claim 79, wherein said copper layer is elemental copper.

81. (New) The interconnect structure of claim 79, wherein said copper layer contains a thin copper oxide layer thereon.

82. (New) The interconnect structure of claim 81, wherein said copper oxide layer has a thickness not greater than 300 Angstroms.

83. (New) The interconnect structure of claim 79 further comprising an electrical conductor bonded to said titanium-aluminum-copper-nitrogen layer.